

What is claimed is:

1. A liquid level sensor apparatus for determining the level of a conductive liquid held within a container having inside walls, one of which is an attachment wall, wherein the container is subject to the accumulation of residue as a consequence of the liquid  
5 contained therein, said sensor comprising:
  - a housing which is attached to an attachment wall of the container;
  - an insulated probe having an attachment end and a sensor end, wherein the attachment end of said insulated probe is connected to said housing such that the probe end is able to contact the conductive liquid held therein;
  - 10 a conducting sensor tip having a voltage and disposed at the probe end of said insulated probe;
  - a ground connection having an electrical polarity, said ground connection being in contact with the conductive liquid;
  - an exposed tip of a bias wire which exits said insulated probe positioned between  
15 said attachment end and said sensor end such that a bias voltage at said exposed tip provides a virtual bias voltage circumferential ring around said insulated probe immediately adjacent to said exposed tip; wherein the bias voltage of the virtual bias voltage circumferential ring has a polarity opposite of said ground connection wherein the bias voltage corresponds to the voltage of said conducting sensor tip;
  - 20 wherein once the liquid is in contact with said conducting sensor tip at a predetermined level, a circuit is completed to said ground connection which indicates a "full" condition and wherein if the liquid is not in contact with said conducting sensor tip at the predetermined level, a "not full" condition is indicated, and wherein the bias

voltage of said virtual circumferential ring prevents a false indication of a "full" condition by preventing the completion of circuit from said conducting sensor tip to said ground connection via residue on the container walls and said insulated probe even when the liquid is not in contact with said conducting sensor tip.

5           2. The liquid level sensor apparatus of claim 1 wherein said housing further comprises a larger diameter region extending from the attachment end to the exposed tip of said bias wire which exits said housing and a smaller diameter region extending immediately adjacent from the exit point of the exposed tip of said bias wire to conducting sensor tip such that the two different diameter regions of said housing provide  
10 a shelf which tends to collect conductive liquid which assists in providing said virtual circumferential ring.

3. The liquid level sensor of claim 2 wherein said larger and smaller diameter regions of said housing are integral with one another.

4. The liquid level sensor of claim 2 wherein said first and second predetermined  
15 levels are substantially the same.